

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-014856**Date Inspected:** 23-May-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG and Tower**Summary of Items Observed:**

CWI Inspectors: Mr. Geng Wei, Mr. Zhu Zhong Hai, Mr. Li Yang,

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG Bay 13

This QA Inspector observed ZPMC welder Ms. Wang Min, stencil 044771 is using submerged arc welding procedure specification WPS-B-T-2221-B-U3C-S-2 to make OBG segment 13AE bottom plate groove butt weld BP3032-001-002. This QA Inspector observed Ms. Wang Min appears to be certified to make this weld and measured a welding current of approximately 680 amps and 32.5 volts. ZPMC has used electric heating elements to maintain the temperature of the steel plates that are being welded. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Xi Xianyou, stencil 047866 is using flux cored welding procedure WPS-B-T-2231-B-U2-F to make OBG segment 12CW weld SEG3006A-002. This QA Inspector observed a welding current of approximately 280 amps and 30 volts. This QA Inspector observed ZPMC CWI Mr. Zhu

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Zhong Hai has recorded a welding current of 206 amps and 25.7 volts. This QA Inspector asked Mr. Zhu Zhong Hai what are the acceptable welding current and voltages that are listed in the welding procedure specifications. Mr. Zhu Zhong Hai looked at his personal log book and then he informed this QA Inspector that the WPS lists the minimum of 280 amps and 28.0 volts. This QA Inspector informed Mr. Zhu Zhong Hai that the welding current and voltage he has listed on his inspection report are not within the acceptable ranges, but that the welding current and voltages that this QA Inspector measured appear to comply with the welding procedure specification. Mr. Zhu Zhong Hai informed this QA Inspector he had made a mistake and that he will correct his document. This QA Inspector observed Mr. Xi Xianyou appears to be certified to make this weld. Items observed on this date do not appear to fully comply with applicable contract documents.

OBG Segment Assembly

ABF issued "Inspection Notification Sheet" number 05232010-1 item #1 informing QA that on 05-23-2010 at 18:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld SEG040*-044 which joins OBG segment 7DE deck plate to edge plate. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that this weld repair area is accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and E (AWS D1.5 Fig 6.7) and the weld repairs appear to comply with project specifications. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

ABF issued "Inspection Notification Sheet" number 05232010-1 item #2 informing QA that on 05-23-2010 at 18:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld CA054-004 which joins OBG segment 8CE deck plate to edge plate. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that this weld repair area is accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the weld repairs appear to comply with project specifications. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

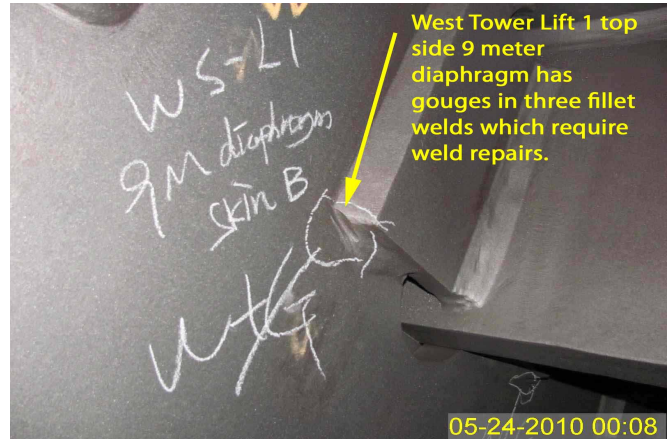
ZPMC "Notice of Inspection Sheet" document T-460 requests visual inspections of West Tower Lift 1 from 0 meters to 18 meters. These locations have been initially grit blasting, prior to application of paint, and the steel surfaces are ready for QA Inspections. ABF and ZPMC Inspectors performed visual inspections of the areas indicated above.

Caltrans QA Inspectors George Goulet, Daniel Barrentine and Paul Dawson performed random visual inspections of these areas. Approximately 8 locations were marked by ZPMC QC, ABF and/or Caltrans Inspectors as needing to be weld repaired. Five of the repair areas were between the 9 and 18 meter diaphragms and three areas were located between the 13 and 18 meter diaphragms. All weld repair areas have been covered by duct tape. Additional photographs of these areas are on the Z drive. Paul Dawson observed the lower side of the 13 meter diaphragm where the back side of one of the stiffener plates appears to have been torch cut and partially welded to fit against the skin plate E. This stiffener plate does not have an identification number, but it is near the center of skin plate E. The area has now been taped over pending repairs. George Goulet noted that skin plate D on the

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lower side of the 13 meter diaphragm plate appears to have been gouged between the first and second skin stiffener plates at upper 1200 mm adjacent to the edge of the diaphragm plate. This gouge appears to extend into skin D plate to a depth of approximately 4 MM. This area has now been taped over pending repairs. ABF has marked three fillet welds on the top side of the 9 meter diaphragm as needing to be weld repaired. See the photographs below for additional information. The areas have been taped over pending repairs. Other areas that require rework were marked with colored chalk and ZPMC workers were using electric grinders to remove the visually unacceptable areas and some areas have been identified by Caltrans Inspectors as needing magnetic particle inspections of the arc strike removal areas after they are removed.



Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer
